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**ABSTRACT**

Alaskan students' scores on the Scholastic Aptitude Test (SAT) increased nine points between 1984 and 1985, matching the national gain. These scores marked the fourth year of increases following 17 years of consistently declining scores. Thirty-three percent of Alaska's high school seniors took the SAT in 1985. The combined score of 923 was 17 points above the national average. Nationally, a greater number of students took the SAT, including a greater number of minority students, who represented twenty percent of students taking the SAT. Substantial gains were reported for both sexes and all racial groups. However, with the exception of Asian Americans, minority groups' scores were lower than whites'. Females generally scored lower than males, particularly in mathematics. About the same number of students took the American College Testing examinations (ACT) as the SAT. However, the trends differed. ACT scores declined from 1970 to 1976 and stabilized in subsequent years. Increases have been smaller, and women outperformed men on the English test. Problems in interpreting SAT data and making state-to-state comparisons were illustrated. It was also recommended that SAT scores not be used to summarize educational quality. (GDC)

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Alaska, National SAT Scores Increase; Has the Quality of Education Improved?

Assessment Report 12: An Update on the Alaska Statewide Testing Program

Office of Evaluation, Assessment & Research  
Alaska Department of Education

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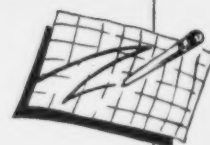
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# ASSESSMENT REPORT 12: An Update on the Alaska Statewide Testing Program



## Alaska, National SAT Scores Increase; Has the Quality of Education Improved?

Scores on the nation's most widely used college entrance examination, the Scholastic Aptitude Test, increased nine points between 1984 and 1985, the greatest single year gain in over two decades. Alaska's college-bound seniors also did well, exactly matching the nine-point national gain.

These scores marked the fourth year of increases following seventeen years of consistent decline. Several prominent educators suggested the score gains were evidence of the increasing effectiveness of U.S. education. Others warned against making such claims, however, citing numerous alternative explanations for the score increase.

The Scholastic Aptitude Test, more commonly referred to as the SAT, is administered by Educational Testing Service for the College Board, the non-profit agency which sponsors the tests. Nationally, almost a million candidates for college admission took the test this year. In Alaska, over 2,100 students--33% of the state's seniors--took the test.

The SAT contains two sections, verbal and math. Each of the sections is scored on a scale of 200 to 800. Scores for the two sections are added to yield a combined score. The national average verbal score was 431, an increase of 5 points over 1984, while the math score rose 4 points to 475. The combined score of 906 is a substantial gain over last year's 897, itself a sizable improvement over the all-time lows of 890 obtained in 1980 and 1981.

This year, Alaska's verbal score average rose 3 points to 446 while the math score rose 6 points to 477. Alaska's combined score of 923 now stands 17 points above the national average. In earlier years, though, the state has scored almost fifty points above the national average (see the graph, right).

A precipitous decline between 1981 and 1983, from 935 to 905, brought Alaska's scores much closer to the national average. Since 1983, both state and national averages have increased. But while Alaskans' verbal score has stayed well above the national average over the past ten years, math scores have not; after being consistently, and substantially, above the national math average between 1975 and 1982, Alaska's average score fell to the point where they equaled the national average in 1983 and 1984. And, as noted, the state's current math average is just two points higher than the national average.

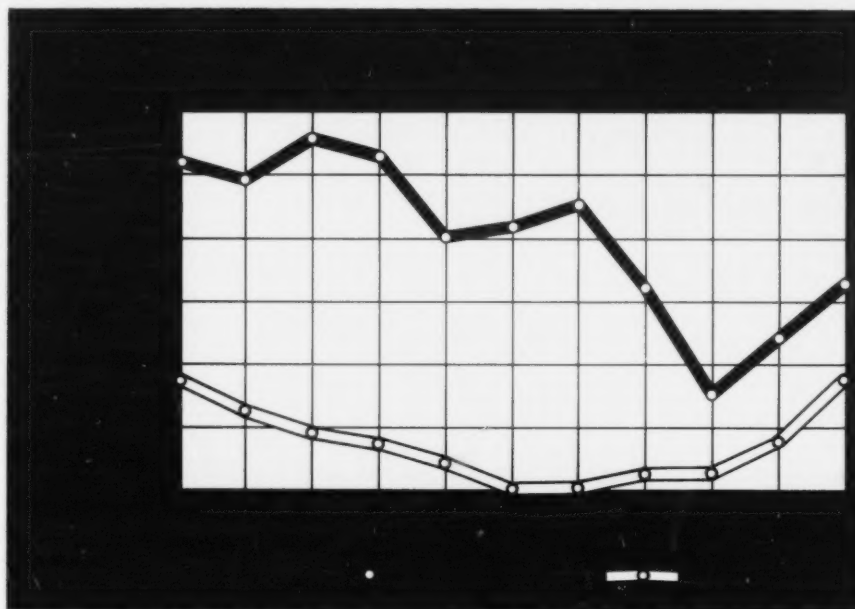
Not only was the national combined score gain the largest since 1963, it came despite an increase in the total number of students taking the test. Since the nation's highest-achieving students almost always take the SAT,

an increase in the number of students would tend to lower the national average. But substantial gains were found

***Scores on the Scholastic Aptitude Test increased nine points between 1984 and 1985; this marked the fourth straight year of increases following seventeen years of consistent decline.***

for both sexes and all racial groups, even with the increased number of test takers. Indeed, the number of minority students taking the test rose to twenty percent of all students taking the SAT, an all-time high. Puerto Rican students showed the highest average score gain, approximately ten points.

(continued, next page)



About two-thirds of the country's college-bound seniors take the Scholastic Aptitude Test. The average scores of students in both Alaska and the nation are currently increasing. Do recent gains in the SAT averages reflect widespread improvements in the quality of education?

## Alaska, National SAT Scores Up

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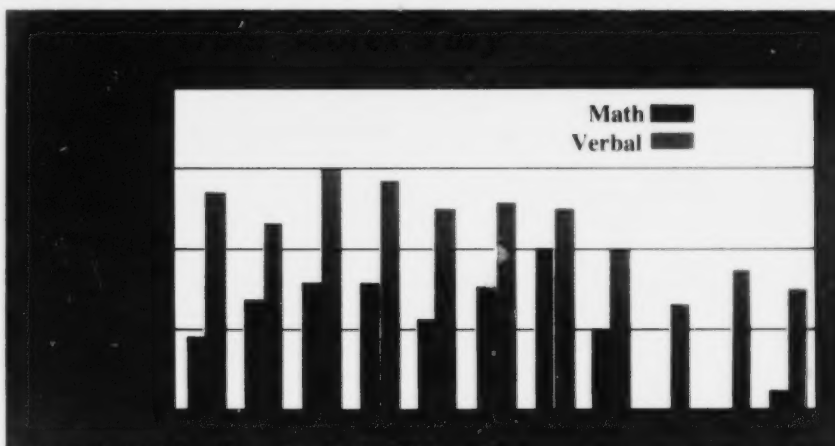
Nevertheless, most minority students continue to score well below the national average. Black students had a combined score of 712, compared to white students' average of 940. Most other minority groups also scored lower than whites, although Asian-American students taking the test achieved the best results of any group, scoring 26 points higher than the whites.

In Alaska, only a couple hundred minority students, divided across six racial groups, took the test. That number is too small to accurately compare the performance of different racial groups. But although statistically precise comparisons cannot be made, the magnitude of the differences in Alaska minority students' scores is similar to those found at the national level.

Women generally scored lower than men on the test, both in Alaska and the nation as a whole. The differences are most pronounced on the mathematics portion of the test. And although responses to a questionnaire accompanying the test show women to be increasingly interested in math and science courses, women still report taking a semester less of these subjects than men.

***Most observers feel that the SAT by itself is far too narrow a measure to serve as the principal indicator of the status of education.***

It is possible that the current increase in the nation's average SAT scores does reflect an improvement in the quality of education. But most knowledgeable observers feel that the SAT by itself is far too narrow a measure to serve as the principal indicator of the status of education. They recommend extreme caution when attempting to use SAT scores as a measure of the quality of education, either in Alaska or the nation as a whole. The articles on pages 3 and 4 of this newsletter provide additional information about the problems inherent in such interpretations.



Although Alaska's seniors who take the SAT are still above the national average on the verbal section, they have lost most of the advantage that they once had in math, falling from a 21-point lead in 1981 to exactly equal to the national average in 1983 and 1984.

## The "Other" Test--the ACT

Not all college-bound students take the Scholastic Aptitude Test. In fact, nearly as many students--about a million--take the American College Testing examinations, the ACT. What has happened to ACT scores in recent years, and why do they receive so much less publicity than the SAT scores?

The ACT test is administered by the American College Testing Program of Iowa City, Iowa. The test is administered widely in 28 states in the Midwest, South and West where many public colleges and universities require the examination as one of their entrance requirements. In Alaska, close to 2,000 students have taken the ACT in recent years, about the same number as take the SAT.

While there are substantial differences in test content, both the SAT and ACT tests purport to measure the same general concept--the readiness of the student to perform college level work. The two tests do not, however, yield the same results.

SAT scores declined over a 17-year period from 1963 to 1980 and then rose substantially. ACT scores declined only from 1970 through 1976 and have been largely stable since that time. And while some observers were citing the record nine point increase in SAT scores as evidence of a renewal of quality in U.S. education, the 1985 ACT scores rose only a tenth of a point, from 18.5 to 18.6 on a scale that runs from 1 to 36.

There are other important variations. For example, men outperform women, 437 to 435, on the verbal section of the SAT. But women outperform men on the English section of the ACT, 18.6 to 17.6.

In Alaska, 1985 scores on the ACT were slightly lower than in 1984: 17.9 this year as opposed to 18.2 in 1984. Alaska students performed below the 1985 national average of 18.6 on the ACT, but their SAT scores were above the national average. Further, as mentioned, the ups and downs in the ACT scores don't parallel the SAT variations across years.

Should these differences cause us to question the data we obtain from the two tests? Actually, it is not the data that needs questioned so much as the conclusions drawn from the data. Because the SAT data (unlike ACT data) has been released to researchers and the public in considerable detail for a number of years, it came to be used frequently by educators, politicians and the lay public to assess school quality. People came to look on changes in the scores, even if only a fraction of a percent, as indicative of some general trend. The fact that the SAT and ACT scores don't always show the same things is a good reason for caution. In practice, since neither the SAT nor the ACT is administered to a controlled sample of students across years, the real reasons for changes in the scores are probably impossible to determine.

## ***SAT Interpretation: Part Science, Part Art, Part Nonsense?***

### **Score Gains May Not Mean Better Education**

In the 1960s and 1970s, students' performance on standardized tests generally declined. This drop in test scores was considered by many to be a prominent symptom of an overall decline in the quality of American education. Indeed, the principal conclusion of the report of the National Commission on Excellence in Education, *A Nation at Risk: The Imperative for Educational Reform*, was that the low quality of education had become a major social problem. The Committee even questioned whether the United States would still be able to compete economically with the rest of the world given the poor test scores.

The Committee, and many others critical of education, paid particular attention to the decline in scores of the Scholastic Aptitude Test, the SAT. The college-bound high school seniors who took this national "entrance examination" in 1980 obtained a combined verbal and mathematics score almost ten percent lower than their counterparts in 1963. These plummeting scores were widely cited as evidence that American education had fallen into disrepair. Indeed, President Reagan went so far as to attribute the decline in SAT scores to too much federal involvement in education.

In 1982, SAT scores increased slightly. In 1983, the average remained stable. But in 1984 and 1985, scores rose dramatically. The combined score now stands at 906, 13 points higher than its 1980/81 low point. Now that scores are increasing, many are citing them as evidence of the "turnaround" in education: more attention to the basics, less permissiveness and, in general, more attention to academic study.

So in less than a decade, scores on the SAT have been presented as evidence of both a precipitous decline in and a remarkable resurgence of quality in U. S. education. But can variations in the SAT scores support these sweeping conclusions? And can the scores and trends of the SAT be used to compare educational quality in and among states?

The answer given by many educational measurement experts is an emphatic "No." They raise two major objections:

1. That the skills measured by the SAT are not an adequate representation of what makes a quality education, and
2. That the population taking the SAT is not adequately controlled to permit meaningful comparisons across years.

The first objection is more philosophical, and more quickly addressed. The SAT is taken almost exclusively by college-bound seniors. About a third of the nation's seniors take the test, meaning that only about three percent of the students in U.S. schools take the test. So if "quality education" is considered to be what happens to all students at all grade levels, the small percentage of students taking the SAT makes it an inadequate measure. Further, the SAT tests only math and verbal ability; other areas of study considered crucial to a complete education are not addressed. Finally, while what a student learns in school unques-

tionably affects his or her SAT score, the test's developers maintain the test is a measure of *aptitude* for college learning, not student *achievement*. So the question becomes, "Can sensible conclusions about the quality of education be drawn from such a small sampling of students and skills?" Many say they cannot.

But even worse, some say, the population does not even represent a consistent sampling of college-bound seniors. Only two-thirds of that group takes the SAT. And the percent of all seniors taking the test changes from year to year. When test scores began to decline, many defenders of education pointed out that the score decline was understandable given that more students were taking the test. Since the highest achieving students had always taken the test, the new students tended, they said, to lower the average. (One reason to be optimistic about the increased 1985 scores is that they came in spite of an increase in the total number of students taking the test.)

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The situation becomes even more confusing when one attempts to use the scores to compare educational quality across states. In recent years, the number of students tested in each state has varied from only 2 percent to 69 percent. But having only two percent of its students taking the SAT didn't keep South Dakota from publicizing its high average score as evidence of the state's desirability to businesses, nor did the disparity keep the U. S. Department of Education from including the SAT averages among its important national indicators. Using test scores in this way can result in conclusions which border on ludicrous.

For example, is education in Iowa far superior to that in Indiana? Probably not, but that's the conclusion some would draw based on state average SAT scores, where the average Iowa student outscored the average Indiana student by *roughly 200 points!* Realistically, the bulk of the difference is no doubt due to the fact that only three percent of Iowa's seniors took the test, compared to half of Indiana's. (See the article on the following page for more information.)

All things considered, caution is recommended when using SAT scores to support statements about the quality of education. Problems with the coverage of the test content and the size and consistency of the sample of students who take the test make it dangerous to base sweeping conclusions on this limited data. The test is good at what it was developed to do--screen and rank students for college admissions purposes. To use it in a way never intended--that is, to serve as a yardstick for the American educational system--is highly questionable.

## ***SAT Scores Can Be Misleading*** **State Comparisons Are Probably Not Defensible**

Consider, for a moment, this interesting experiment conducted by Dr. Frank Womer, a professor of education at the University of Michigan and a consultant to the Alaska Assessment Program. Using 1982 data, Dr. Womer divided the 50 states into two groups--into Group A he placed the 28 states where less than 20% of the high school graduates took the SAT; into Group B he placed the 22 states where more than 20% of the seniors took the test. What did he learn from this exercise?

The median combined score of the Group A states was 995, while the median for the Group B states was 888, over a hundred points lower. Note that the national average SAT score has never been as high as 995 nor as low as 888; note, too, that the record nine point increase in the SAT scores encountered in 1985 is not one-tenth of the difference accounted for by the percentage of seniors taking the test.

In a more rigorous study reported in the November 1984 issue of the *Har-*

*vard Education Review*, Brian Powell and Lala Carr Steelman found that nearly 82% of the difference among states' average scores depends on the percentage of students electing to take the SAT. This means that, at the very best, only 18% of the variation in SAT scores actually has anything to do with the abilities of the students tested.

Powell and Steelman performed appropriate statistical procedures to remove the impact of different percentages of students taking the test from the 1982 SAT scores and then reranked the states. Alaska, which ranked 29th when actual scores were considered, would have ranked 15th when its score was controlled for percentage of students taking the test. Massachusetts, which had been 40th, would have risen to 17th; Washington, which ranked 19th, would have risen to 2nd; and New Hampshire, ranked 28th, would have become 1st. On the other hand, Mississippi, which had ranked 16th, would have fallen to 48th; Utah would

have fallen from 8th to 36th; South Dakota, from 2nd to 18th.

Are educators justified in using the SAT to compare educational quality across states? In light of the overwhelming influence the percentage of seniors choosing to take the test has on a state's average score, the answer given by many measurement experts is an unequivocal "no."

Dr. Womer gave a succinct summary of the situation in his editorial in the Spring 1983 issue of *Educational Measurement: Issues and Practice*. "The College Board is not an agency of educational accountability; the SAT is not designed to sample curricular attainments of high school seniors nationwide; the SAT is not administered to random samples of high school seniors. . . . I do not respect the use of SAT averages as an indication of the effectiveness of education in our various states. Professional educators should know better, even if the media does not."



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